

REMARKS

Applicant requests reconsideration and allowance. The amendments to the claims were made to correct minor grammatical errors and were not made to distinguish the claims from the art of record. The following remarks will show that the invention is different from and patentable over the art of record that the rejection applies to the claims.

The invention generates synthesized speech that uses fundamental stored audio segments that are different from the audio segments used by the art of record. The prior art conventionally uses bands of one phone to form allophones; the invention uses bands from two adjacent phones to create the allophone and then applies one or more rules to smooth out the concatenated audio segments.

Claim 132 was rejected based on a finding that the reference of Gagnon (US 5,463,715) shows each of the steps of that claim. That finding is erroneous because the reference and the invention use different audio segments to create the concatenated sounds. Every sound/phone has three bands: initial, center (solo) and final. Gagnon forms allophones by interpolating waveforms containing only one band of a phone. In contrast, the invention concatenates two audio segments which contain at least three bands of two adjacent phones.

The above difference follows from the different inventory of audio elements selected by Gagnon and by the invention. In Gagnon, each stored audio segment is limited to only the initial, center and final waveform of one phone. In contrast, the audio segments of the invention include portions of at least two sounds/phones.

See Gagnon, col. 4, lines 31-49. Gagnon forms the short “a” of the word “cat” by selecting an initial waveform (band) from a stored segment corresponding to an articulation initial waveform (band) of “a” as found in a “ca” sound, a center (solo) waveform of a short “a” and a final waveform (band) of an “at” sound. Gagnon is straightforward: each sound/phone is individually created from stored bands of that one sound/phone and then the sounds/phones are concatenated together by interpolation.

The invention starts with different building blocks. Instead of storing only audio segments of initial, center (solo) and final bands of a sound/phone, the invention stores segments that each include one or more bands of two adjacent

sounds/phones. When two segments of the invention are concatenated, the result is sound that has bands of three sounds/phones.

See Fig. 2b of the application. Note that the audio segment has bands from two different but adjacent sounds. It has the solo (center) and end (final) band of the first sound/phone and the start co-articulation band of the second sound/phone. When one compares the invention of Fig. 2b to Fig. 2 of Gagnon, one finds that the stored audio segment of the invention include the center and final waveforms (bands) of “c” and the initial waveform of the short “a.” In contrast, Gagnon stores only the bands of each individual sounds and does not store audio segments with bands from two adjacent sounds.

The invention provides a set of stored audio segments that have more information than the corresponding elements of Gagnon. The invention stores portions of the blend of two different but adjacent sounds/phones. In contrast, the Gagnon relies upon the conventional use of sounds/phones that are modified by glottal, labial or medial consonants. The invention provides sound segments that already include the seeds of realistic concatenated sounds because each audio segment stored by the invention includes information of at least two sounds/phones. In contrast, the Gagnon stored segments are segments of only one sound/phone.

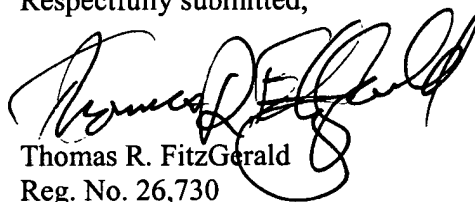
Another difference between the invention and Gagnon is their respective boundaries between stored elements and the instances of concatenation. Gagnon has boundaries between every band of each phone and no audio segments of Gagnon comprises bands of two phones. In contrast, the invention boundaries may include three bands that stretch over two sounds/phones. Most audio segments either begin with or end with a solo band. Those that begin with a solo band have the final band of the initial sound/phone and terminate with the initial band of the adjacent sound/phone. See Fig. 2b which shows SAB 1/ EKB 1/ AKB 2. Those that end with the solo articulation band of a sound/phone, begin with an final sound/phone of a prior, adjacent sound/phone followed by the initial sound/phone of the solo articulation sound/phone. See Fig. 2c which shows EKB 1/ AKB 2/ SAB 2.

A further difference between Gagnon and the invention is the origin of adjacent initial and final co-articulation bands. In Gagnon they originate from two different elements as each band in Gagnon is its own element. In contrast, the invention forms a plurality of its audio segments from bands of adjacent sounds/phones. Therefore the total co-articulation band that consists of the initial and

final end co-articulation bands, sounds more natural with the invention because the elements used to co-articulate originate from the same utterance of a speaker.

Each independent claim has the same distinguishing limitations discussed above. Thus, the claims as presented are patentable over the art of record as applied to the claims. A notice of allowance is respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Thomas R. FitzGerald', written in a cursive style with a large, looping 'F' and 'G'.

Thomas R. FitzGerald
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